

T2 4K Series

Digital Recorder/Players



T2 4K digital recorder/players models bring 4K DCI, 4K UHD or full high-definition capture and playback to the video professional.

The T2 4K digital recorder/players from Grass Valley, a Belden Brand, are 4K DCI, 4K UHD or HD/SD audio/video layout centers.

The front-panel transport controls have the look and feel of a traditional VTR. In 4K mode (DCI or UHD), one record or one output channel supports 4K content. In HD/SD mode one record and two output channels support SD and HD content.

The crisp, clear LCD front panel can display high-quality images and is complemented by a software application suite for managing and selecting media clips, clip editing and trimming, and payout — including playlist creation.

Featuring rear-panel video/audio/remote/LTC connectivity, T2 4K can also accept files via USB 3.0, or by data transfer over a standard Gigabit Ethernet network, including Grass Valley HQX, XAVC, XAVC S, XDCAM, P2, AVC-ULTRA, Apple ProRes 422, Avid DNxHD and MPEG-2 files.

Further, T2 4K digital recorder/players can be controlled by video production switchers, presentation mixers and audio mixers — to create a powerful presentation system. Every T2 4K has two payout HD/SD channels for independent editing and previewing, or for delivering content to two different display systems simultaneously, useful for edge-blending and displaying 3D content.

T2 4K Model Comparison Table

		T2 4K Elite	T2 4K Pro	T2 4K Express
Mode			HD/SD: 1 in 2 out 4K: 1 in 0 out 4K: 0 in 1 out	
Storage	System		M.2 SSD 64 GB	
	Data	SSD (RAID-0) 2 TB	HDD (RAID-0) 2 TB	
Power supply unit		Redundant PSU	Single PSU	
Media card reader		SD, SD UHS-II, Compact Flash, SxS, 2.5-inch SSD bay	—	
4K DCI/4K UHD		59.94p, 50p, 29.97p, 25p, 24p, 23.98p		29.97p, 25p, 24p, 23.98p
HD 1080		59.94p, 50p, 29.97p, 25p, 24p, 23.98p, 59.94i, 50i		29.97p, 25p, 24p, 23.98p, 59.94i, 50i
HD 720		59.94p, 50p		
SD		59.94i, 50i		

KEY FEATURES

Recorder/Player

- 4K (2160p) ingest support (4K: 1 in 0 out mode)
- 4K (2160p) playback support (4K: 0 in 1 out mode)
- HD (1080p) ingest and playback support (HD: 1 in 2 out mode)
- Three decks for the price of one — HD 1 record and HD 2 playback channels work independently and simultaneously
- HD 2 channel synchronizes playback for key/fill rolls, edge blend displays, multiscreen and 3D applications
- Chasing playback while ingesting (HD/SD)
- Supports 720p to 1080p/i real-time crossconversion
- Direct ingest to external media/storage device
- Scheduled recording

Import/Export

- Native import/playback for most standard formats
- Multicodec support (transcoding to Grass Valley HQX AVI) for most standard and broadcast formats
- FTP transfer rate limited to maintain playback performance
- Watch folder transfers
- Export to Sony XDCAM drive (U1/U2)

Editing

- Direct access to a media folder with EDIUS and the ability to edit a growing file — AVI (Grass Valley HQX) and MXF (XDCAM). (*Elite only*)
- Export a growing AVI (Grass Valley HQX) file via CIFS
- Export a growing MXF (XDCAM) file via FTP
- Import from Final Cut Pro in QuickTime format using the free Grass Valley HQ codec for Mac onto an exFAT HDD

Front Panel

- Easy-to-use front panel interface and jog/shuttle

Workstation

- Workstation mode included as standard
- Simple on-the-fly editing, including trimming, mark in/out, markers with comments, basic transition effects and insertion of placeholders for playlists
- Keyboard shortcuts and mouse customization on workstation

Remote

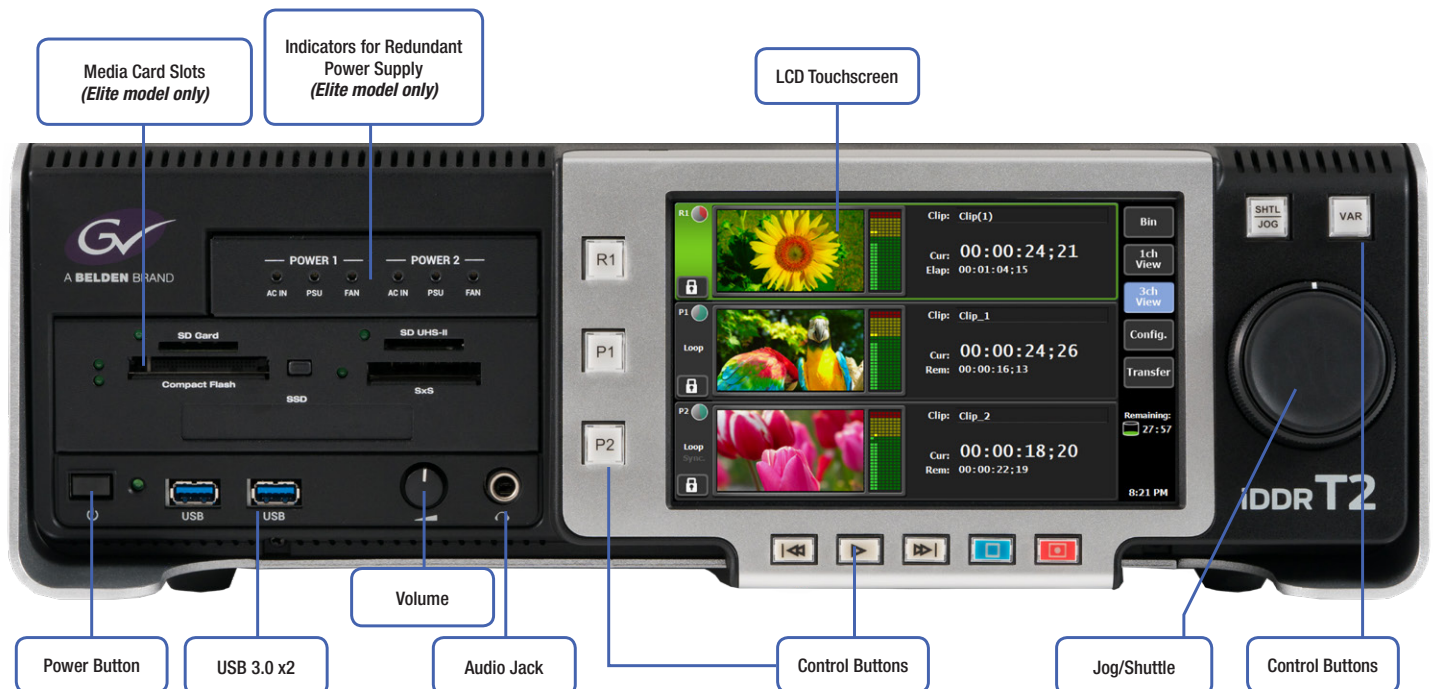
- Synchronized playback using LTC input (Timecode chasing)
- Synchronized playback for multiple T2s using GPI input/RS-422
- Integration support for third-party control (BVW, GPIO and AMP)

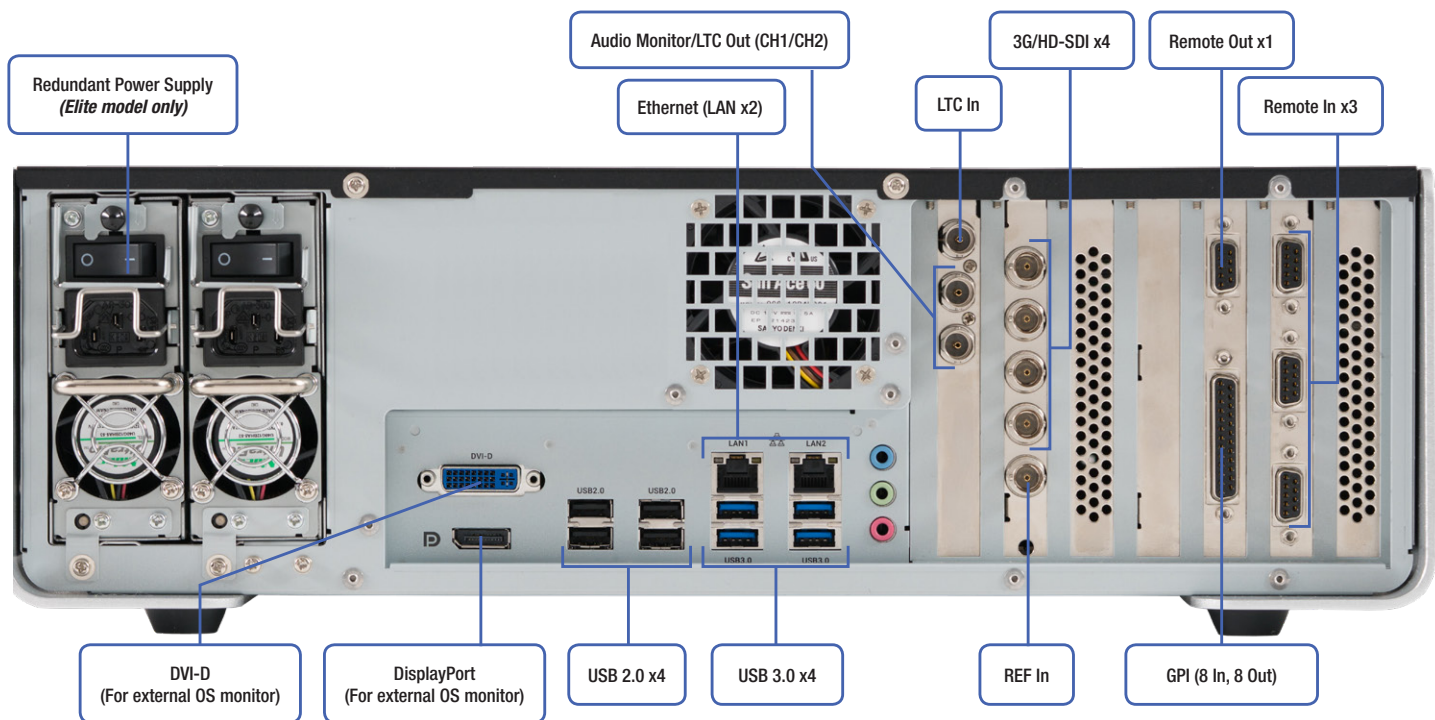
Device

- SDI embedded audio (8 channels)
- Robust design — engineered to withstand punishing live event and mobile production environments
- Redundant power supply (*Elite only*)
- Media card reader (*Elite only*) — SD, SD (UHS-II), CF, SxS, 2.5-inch SSD

Maintenance

- Full data backup and restore feature





ORDERING

218509

KTR4-ELT-CV40 — T2 4K Elite

2 TB usable SSD storage: 1 TB SSD x2 (RAID-0)
 4K DCI/4K UHD (up to 59.94p/50p) and HD 1080 (up to 59.94p/50p)
 Media card reader bay: SD, SD (UHS-II), CF, SxS, 2.5-inch SSD
 Redundant power supply unit
 Direct access to internal storage (CIFS)

Package Contents

- T2 4K Elite unit
- T2 4K read me first
- AC power supply cable x6 (NA/JP x2, UK x2, EMEA x2)
- Registration card for the T2

218493

KTR4-PRO-CV40 — T2 4K Pro

2 TB usable HDD storage: 1 TB HDD x2 (RAID-0)
 4K DCI/4K UHD (up to 59.94p/50p) and HD 1080 (up to 59.94p/50p)
 Single power supply unit

Package Contents

- T2 4K Pro unit
- T2 4K read me first
- AC power supply cable x3 (NA/JP x1, UK x1, EMEA x1)
- Registration card for the T2

218486

KTR4-EXP-CV40 — T2 4K Express

2 TB usable HDD storage: 1 TB HDD x2 (RAID-0)
 4K DCI/4K UHD (up to 29.97p/25p) and HD 1080 (up to 29.97p/25p or 59.94i/50i)
 Single power supply unit

Package Contents

- T2 4K Express unit
- T2 4K read me first
- AC power supply cable x3 (NA/JP x1, UK x1, EMEA x1)
- Registration card for the T2

Option

600476

iDDR2-RACK-W — T2 Rackmount Kit

Rackmount kit for T2 4K Series



Workstation mode.

SPECIFICATIONS

Description

4K/HD Recorder/Player

Model Number

T2 4K Elite: KTR4-ELT-CV40

T2 4K Pro: KTR4-PRO-CV40

T2 4K Express: KTR4-EXP-CV40

Mode

HD/SD: 1 in 2 out

4K: 1 in 0 out

4K: 0 in 1 out

Storage

System:

M.2 SSD

64 GB

Data:

T2 4K Elite: SSD (RAID-0), 2 TB

T2 4K Pro: HDD (RAID-0), 2 TB

T2 4K Express: HDD (RAID-0), 2 TB

Capacity:

3.5 hours: 4K DCI (4096x2160) 59.94p @ Grass Valley HQX (1.2 Gb/s)

7.5 hours: 4K DCI (4096x2160) 29.97p @ Grass Valley HQX (600 Mb/s)

3.5 hours: 4K UHD (3840x2160) 59.94p @ Grass Valley HQX (1.2 Gb/s)

7.5 hours: 4K UHD (3840x2160) 29.97p @ Grass Valley HQX (600 Mb/s)

14 hours: HD (1920x1080) 59.94p @ Grass Valley HQX (300 Mb/s)

28 hours: HD (1920x1080) 59.94i @ Grass Valley HQX (150 Mb/s)

72 hours: HD (1920x1080) 59.94i @ XDCAM HD422 (50 Mb/s)

150 hours: HD (1440x1080) 59.94i @ XDCAM HD (35 Mb/s)

Power Supply Unit

T2 4K Elite: Redundant PSU

T2 4K Pro: Single PSU

T2 4K Express: Single PSU

Media Card Reader

T2 4K Elite: SD, SD UHS-II, Compact Flash, SxS, 2.5 inch SSD bay

Video Input Format

Format Support: 4K DCI, 4K UHD, HD, SD

Connector: BNC (3G/HD-SDI) x4 (shared with video output)

Codec (4K DCI/4K UHD): AVI — Grass Valley HQX

Codec (HD/SD):

AVI — Grass Valley HQX

MXF — XDCAM HD422, XDCAM HD, IMX, DVCAM

Bit rate:

Up to 1.2 Gb/s (4K DCI/4K UHD 59.94/50)

Up to 600 Mb/s (4K DCI/4K UHD 29.97/25/24/23.98)

Up to 300 Mb/s (1080p 59.94/50)

Up to 150 Mb/s (HD, SD)

Resolution/frame rate (Elite/Pro):

[4K DCI] 4096x2160p (59.94p, 50p, 29.97p, 25p, 24p, 23.98p)

[4K UHD] 3840x2160p (59.94p, 50p, 29.97p, 25p, 24p, 23.98p)

[HD] 1920x1080p (59.94p, 50p, 29.97p, 25p, 24p, 23.98p),

1920x1080i (59.94i, 50i), 1440x1080p (29.97p, 25p, 23.98p),

1440x1080i (59.94i, 50i), 1280x720p (59.94p, 50p)

[SD] 720x486i (59.94i), 720x576i (50i)

Resolution/frame rate (Express):

[4K DCI] 4096x2160p (29.97p, 25p, 24p, 23.98p)

[4K UHD] 3840x2160p (29.97p, 25p, 24p, 23.98p)

[HD] 1920x1080p (29.97p, 25p, 24p, 23.98p), 1920x1080i

(59.94i, 50i), 1440x1080p (29.97p, 25p, 23.98p), 1440x1080i

(59.94i, 50i), 1280x720p (59.94p, 50p)

[SD] 720x486i (59.94i), 720x576i (50i)

Video Output Format

Format Support: 4K DCI, 4K UHD, HD, SD

Connector: BNC (3G/HD-SDI) x4 (shared with video input)

Codec (4K DCI/4K UHD):

AVI — Grass Valley HQX, Grass Valley Lossless*, Grass Valley Uncompressed*

MXF — H.264/AVC*, Grass Valley HQX

QuickTime — ProRes422*, ProRes4444*, Grass Valley HQX

MP4 — H.264/AVC

XAVC — 4K Intra (480*/300*), QFHD Intra (480*/300*), QFHD

Long422 (200*/140*/100*), QFHD Long (150/100/60)

XAVC S — H.264/AVC

P2 — AVC-Intra 4K (422*)

Windows Media — Windows Media Video*

Still Image — Targa*, Windows Bitmap*, JPEG*, TIFF*, PNG*,

GIF*, DPX*, YUV Bitmap*

Codec (HD/SD):

AVI — Grass Valley HQX, Grass Valley HQ, Grass Valley Lossless*, Grass Valley Uncompressed*, DVCPRO HD, DVCPRO50, DVCPRO25, DV

MXF — MPEG-2, H.264/AVC, DNxHD (220/145/100/36), Grass Valley HQX, Grass Valley HQ, DVCPRO HD, DVCPRO50, DVCPRO25, DV, D10/IMX, JPEG2000*

QuickTime — ProRes 422, ProRes 4444*, XDCAM (HD422/HD), XDCAM EX, H.264*, MPEG-4*, Grass Valley HQX, Grass Valley HQ, DVCPRO HD*, DVCPRO 50*, DVCPRO 25*, DV*, Motion JPEG*, Uncompressed*

MP4 — H.264/AVC

XDCAM — XDCAM HD422, XDCAM HD, XDCAM IMX, XDCAM

DV, XDCAM EX

XAVC — HD Intra (200, 100, 50), HD Long422 (50/35/25)

XAVC S — H.264/AVC

P2 — AVC-LongG (50/25/12), AVC-Intra (200/100/50), DVCPRO

HD, DVCPRO 50, DVCPRO, DV

AVCHD — H.264/AVC

MPEG-2 — PS*, TS*

Windows Media — Windows Media Video*

GXF — Grass Valley HQ**, MPEG-2 (Intra Frame)**, H.264/AVC

(Intra Frame)**, DVCPRO HD**, DVCPRO 50**, DVCPRO**, DV**

Still Image — Targa*, Windows Bitmap*, JPEG*, TIFF*, PNG*,

GIF*, DPX*, YUV Bitmap*

Note: Some codecs are able to output in one channel only

Bit rate:

Up to 1.2 Gb/s (4K DCI/4K UHD 59.94/50)

Up to 600 Mb/s (4K DCI/4K UHD 29.97/25/24/23.98)

Up to 300 Mb/s (1080p 59.94/50)

Up to 150 Mb/s (HD, SD)

Resolution/frame rate (Elite/Pro):

[4K DCI] 4096x2160p (59.94p, 50p, 29.97p, 25p, 24p, 23.98p)

[4K UHD] 3840x2160p (59.94p, 50p, 29.97p, 25p, 24p, 23.98p)

[HD] 1920x1080p (59.94p, 50p, 29.97p, 25p, 24p, 23.98p),

1920x1080i (59.94i, 50i), 1280x720p (59.94p, 50p)

[SD] 720x486i (59.94i), 720x576i (50i)

Resolution/frame rate (Express):

[4K DCI] 4096x2160p (29.97p, 25p, 24p, 23.98p)

[4K UHD] 3840x2160p (29.97p, 25p, 24p, 23.98p)

[HD] 1920x1080p (29.97p, 25p, 24p, 23.98p), 1920x1080i

(59.94i, 50i), 1280x720p (59.94p, 50p)

[SD] 720x486i (59.94i), 720x576i (50i)

Audio Input Format

Input digital: SDI embedded audio (8 ch)

Audio Output Format

Output digital: SDI embedded audio (8 ch)

Monitor output: BNC x2 (for L ch/R ch) (shared with timecode output)

Headphone: Stereo jack x1

Timecode

Input: BNC x1

Output: BNC x2 (shared with audio monitor output)

Reference

Input: BNC x1 (analog blackburst or HD tri-level sync)

Remote Control

GPIO: D-Sub 25-pin x1 (8 in 8 out)

RS-422 (BVW):

RS-422 (D-Sub 9-pin) for controller x1

RS-422 (D-Sub 9-pin) for device x3

Network: AMP (Advanced Media Protocol)

LAN: RJ45 x 2 (10Base-T/100Base-TX/1000Base-T)

USB:

USB 3.0 x6 (Front x2, Rear x4)

USB 2.0 x4 (Rear x4)

PC Display

DisplayPort x1

DVI-D x1

(DisplayPort and DVI-D cannot be used at the same time)

Mechanical Specifications

Dimensions (W x D x H): 430 x 550 x 140 mm (16.9 x 21.6 x 5.5 in.)

Weight: 16.5 kg (36.4 lbs.)

Operating Temperature: 5°C to 35°C (41°F to 95°F)

Operating Relative Humidity: Max. 80% (non-condensing)

Electric Power Consumption

Up to 200W

* Transcode to AVI (Grass Valley HQX) when importing

** Rewrap to MXF when importing



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